

What is claimed is:

1        1.        A duplex check printer, comprising:  
2                a first document path including an internal end;  
3                at least one first document driving member engaging a check in said first  
4 document path to drive said check in a forward direction toward said internal end  
5 and in a reverse direction, opposite said forward direction;  
6                a first motor moving said at least one first document driving member in a  
7 first direction to move said check in said forward direction along said first  
8 document path and in a second direction to move said check in said reverse  
9 direction along said first document path;  
10              a print head disposed adjacent a first side of said first document path;  
11              a second document path, extending from said internal end of said first  
12 document path, forming a loop to invert a check driven around said second  
13 document path in a preferred direction;  
14              at least one second document driving member engaging said check in  
15 said second document path to drive said document path to drive said check in  
16 said preferred direction; and  
17              a second motor driving said at least one second document driving  
18 member to move said check around said loop in said second document path in  
19 said preferred direction, wherein said first motor and said second motor are  
20 separately controlled.

1        2.        The duplex check printer of claim 1, additionally comprising:  
2                document position determining means for determining when a check  
3 driven into said second document path from said first document path is moved  
4 past said at least one first document driving member; and  
5                control means causing said first motor to drive said at least one first  
6 driving member to drive said at least one first driving member in said second  
7 direction in response to a determination by said document position determining

8 means that said check driven into said second document path from said first  
9 document path is moved past said at east one document driving member. .

1 3. The duplex check printer of claim 2, wherein said document position  
2 determining means includes a document sensor disposed between said at least  
3 one first document driving member and said internal end of said first document  
4 path.

1 4. The duplex check printer of claim 2, wherein said document position  
2 determining means includes a means for determining how far a check has been  
3 driven in said forward direction by said at least one first document driving  
4 member.

1 5. The duplex check printer of claim 4, wherein  
2 said at least one first document driving member includes a drive roller  
3 held in contact with a check moving along said first document path,  
4 said first motor includes a stepper motor,  
5 said document position determining means includes a circuit determining  
6 that a check has been driven through a predetermined distance in said forward  
7 direction by rotation of said stepper motor.

1 6. The duplex check printer of claim 1, including a frame supporting said at  
2 least one second document member, wherein  
3 said at east one second document driving member includes at least one  
4 document drive belt extending between a drive roller assembly, rotatably  
5 mounted on said frame and driven in rotation by said second motor, and an idler  
6 roller assembly rotatably mounted on said frame, and  
7 said second document path extends around said at least one document  
8 drive belt.

1 7. The duplex check printer of claim 6, wherein said second motor comprises  
2 a permanent magnet direct current motor.

1 8. The duplex check printer of claim 6, wherein  
2 said second motor is attached to said frame to be disposed within said at  
3 least one document drive belt,  
4 said second motor drives said drive roller assembly through a gear train  
5 additionally attached to said frame within said at least one document drive belt.

1 9. The duplex check printer of claim 6, additionally comprising a plurality of  
2 rollers disposed outwardly adjacent said at least one document drive belt to hold  
3 said check moving along said document drive belt in contact with said document  
4 drive belt.

1 10. The duplex check printer of claim 1, additionally comprising:  
2 a document tray extending from said internal end of said first document  
3 path; and  
4 a gate moved between first and second positions, wherein said check  
5 driven from said first document path in said forward direction is driven along said  
6 document tray with said gate in said first position and into said second document  
7 path with said gate in said second portion.

1 11. A method for printing on both sides of a check, wherein said method  
2 includes:

3 a) printing information on a first side of said check as said check is  
4 moved along a first document path by at least one first document driving  
5 member;

6 b) moving said check through said first document path with said at least  
7 one first document driving member moving in a forward direction and into a  
8 second document path;

9 c) determining that said check has moved past said at least one first  
10 document driving member;

11 d) reversing a direction of motion of said first document driving member  
12 to move in a reverse direction in response to determining that said check has  
13 moved past said at least one document driving member;

14 e) moving said check through a loop within said second document path  
15 by at least one second document driving member driven separately from said  
16 first document driving member to invert said check;

17 f) moving said check from said second document path back into said first  
18 document path and within said first document path with said first document  
19 driving member moving in said reverse direction; and

20 e) printing information on a second side of said check, opposite said first  
21 side of said check, as said check is moved along said first document path by at  
22 least said at least one first document driving member.

1 12. The method of claim 11, wherein said at least one second document  
2 driving member comprises at least one document driving belt moving within said  
3 loop, driven by a motor separate from said at least one first document driving  
4 member.

1 13. The method of claim 11, wherein a determination that said check has  
2 moved past said at least one first document driving member is made by  
3 monitoring an output of a document sensor at said first document path between  
4 said at least one first document driving means and said second document path.

1 14. The method of claim 11, wherein a determination that said check has  
2 moved past said at least one first document driving member is made by  
3 determining a distance that said check has been driven by said at least one first  
4 document driving member driven in said forward direction.

1 15. The method of claim 14, wherein said at least one document driving  
2 member includes a roller driven by a stepper motor separate from said at least  
3 one second driving member.

1 16. The method of claim 11, wherein step a) includes moving a portion of said  
2 check between a document tray, separate from said second document path, and  
3 said first document path by said at least one first document driving member.

1 17. The method of claim 16, wherein step b) includes moving a gate to deflect  
2 said check into said second document path.

1 18. The method of claim 17, wherein step e) includes:  
2 moving said gate to deflect said check onto said document tray; and  
3 moving a portion of said check onto said document tray from said first  
4 document path.

1 19. The method of claim 11, wherein step e) includes:  
2 moving a gate to deflect said check onto a document tray separate from  
3 said second document path, and  
4 moving a portion of said check onto said document tray from said first  
5 document path.